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have vanished. Even donkeys are now rare; and as for horses, I do not remember to have seen one during the seven weeks we spent in Nubia."

Between Aswan and Abu Simbel almost all the birds that were seen were either on the wing, or perched in the tops of partially submerged sotn trees. Sometimes we ran near enough these trees to allow of identification of the birds, at other times they were clearly seen but had to be assigned to the class of birds unidentified. Of these there were several, both in Egypt and Nubia, that by me had to be remembered in the great class of the unknown.

OWLS, AS REGARDED BY THE SCIENTIST, THE
THE AGRICULTURIST, AND THE
SPORTSMAN.

BY R. W. SHUFELDT.

(Photographs from Life by the Author.)

When Doctor R. Bowdler Sharpe, of the British Museum, published his invaluable work entitled *A Hand-List of the Genera and Species of Birds*, he recognized no fewer than thirty genera of Owls in the world's avifauna, and, according to him, they have been created to contain 316 species of these very interesting birds. This classification was made in 1899, since which time there have doubtless been many more species added to the list. Some of these thirty genera contain but one species, while others contain all the way from two to eighty, the latter number being found in the genus *Scops*. Besides these existing species of owls science recognizes quite a number of extinct forms, which are known to us only through their fossil remains.

The owls of the United States, according to the last Check-List of the American Ornithologists' Union, fall into twelve different genera, and there are at least forty-three species and subspecies of them. As in the case of the Old World forms, too, several species of large fossil owls have been dis-

covered, which go to show that birds of this kind have existed in North America for a great many thousands of years.

Our United States owls have interested me for nearly half a century, and during all that time I have kept several species of them as pets; have shot specimens for my own and other collections, and photographed from life many of the different species. Without referring to any special statistics or censuses with respect to these birds in nature, I am of the opinion that, with the exception of certain places and in the vicinage of large cities, owls are about as numerous elsewhere as they were fifty years ago. This is due to the fact that man does not use them for food; other animals seldom prey upon them, and the majority of the species are entirely nocturnal in habit. Around cities and towns, however, owls are almost invariably slain when a man or a boy comes across one of them in the open with the means of shooting the bird or otherwise killing it. There are but few exceptions to this rule anywhere in the course of a year, and through such practices altogether too many of these useful birds are, in sheer wantonness, annually destroyed.

Throughout the world there are thousands of skins and mounted specimens of all kinds of owls in the collections of private individuals, ornithologists, and museums, and these are of great value to science. There are also many skeletons of owls in similar hands and institutions, and the study of these has thrown much light on the general history of birds, in so far as such material can do so. Studies of this character are extremely important, and up to the present time have by no means been exhausted, in so far as owls are concerned. Indeed, several of the structures in the anatomy of these birds are of wonderful interest, as the assymmetry of the skull in some species; their extraordinary ears; the osseous platelets of the eyes, and so forth, all of which I have studied many times and described in various publications.

In this age, however, owls are, as in the case of all of our birds, looked upon in an entirely different light from what they were fifty years ago, when they were far more numer-

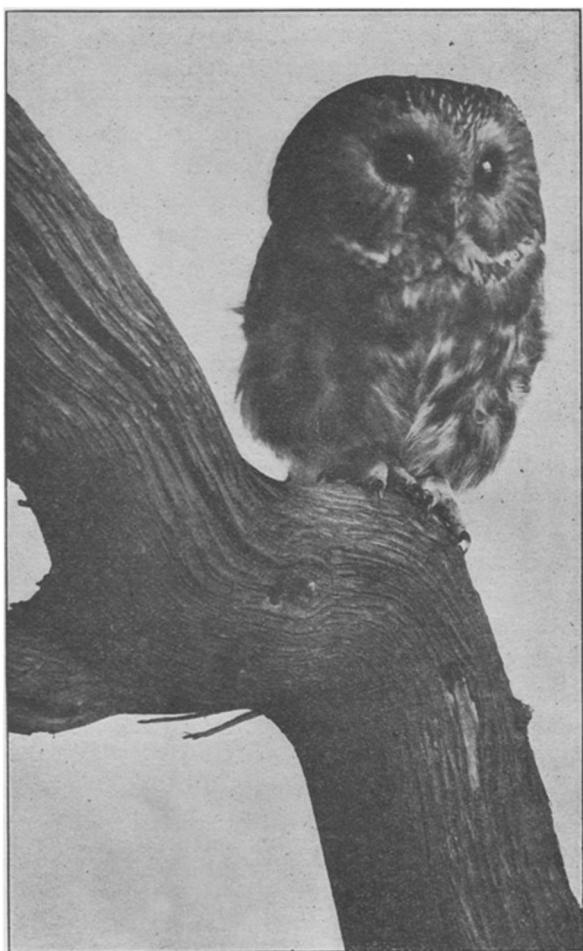


Fig. 1. Saw-whet Owl.

ous. In those days, no one thought of considering birds of any kind in their relation to man and his material interests; while, as we at the present time know, in this age of commercialism, our Government employs a staff of economic ornithologists, who are engaged in making estimates of the value of every species of bird in our avifauna, in so far as they affect our forests, our farm products, and our market supplies of feathered game. To arrive at these estimates, vast numbers of birds are sometimes sacrificed, and often with no better result than to enforce, through federal legislation, some expensive blunder.

In these extensive investigations, owls have come in for their full share of being scrutinized with respect to their habits and the contents of their "stomachs," — the latter line of examination costing many a one its life. These investigations need not detain us here; and, aside from such value as owls have for the scientist, as pointed out above, it is of the greatest importance that agriculturists and sportsmen should ponder well upon the question as to the value these birds have for them in their — it must be admitted — widely different pursuits.

With but comparatively few exceptions, agriculturists believe, as did their ancestors before them, that owls are simply to be classed among such other "vermin" as rats, skunks, and foxes, and this quite irrespective of their size, species, or genus. This is a long way from being true, — indeed it is quite the reverse of the truth; for, apart from some of the medium sized or larger owls occasionally helping themselves to a fowl from the poultry-yard, these birds are the best friends the agriculturist — or more particularly the dealer in feathered live-stock — has in the entire range of wild bird life. As a matter of fact, nearly all owls hunt at night, at a time when most all farm-yard fowls are at roost and under cover, and therefore safe from their attacks. Turkeys, guinea-fowls, and ducks may, at times, form exceptions, and the Great-horned owl from time to time captures one of their kind; but even this is by no means a common occurrence.

Most of the stories, as they have come down to us through the generations, have arisen among the farmers in those sections of the country where such barn-yard fowls as turkeys and chickens, not having been supplied with shelter, have



Fig. 2. Subadult Barred Owl.

habitually roosted in the trees and elsewhere outside the barns and outbuildings. Where this has been the case on farms, where the Great-horned owl is more or less common

in the neighborhood, such fowls have suffered from its nocturnal depredations, until the shotgun has put an end to its raids.

No such harm could come from the three species of owls forming the illustrations to the present article, which I have selected from a large collection of photographs of such subjects, taken by me from life during the past eight or ten years.

Figure 1 is of the little Saw-whet owl (*Cryptoglaux a. acadica*), a form with a body about the size of a robin. Figure 2 is a subadult Barred owl (*Strix v. varia*), the young of which is shown in Figure 3. This medium sized species may occasionally get away with smaller denizens of the poultry-yard, including pullets and chicks; but I do not believe it happens nearly as frequently as many people believe or tell about. Then, when we come to the common Screech owls of the genus *Otus*, the old and young of which are shown in Figures 4 and 5, it is very questionable, in my mind, that they can be considered at all in the light of habitual robbers of the hen-roosts or the pigeon-cotes. There are many species of this genus distributed all over the country, and they prey principally upon small birds, rats, mice, other numerous small rodents, and shrews.

As a matter of fact, our various species of medium sized owls are of vast importance to agriculturists everywhere throughout the country, for they destroy millions of mice, rats, weasels, and other mammals, which eat up, in the course of a year, thousands of tons of grain and other farm produce; and were these animals not kept down by such birds as the owls, they would, in some parts of the country, eat the farmer and agriculturist out of house and home, compelling him to seek other employment for a livelihood. Indeed, it would be an excellent thing to not only encourage such owls as the Barn owl for example to breed and multiply in the neighborhood of large farms, but also to introduce and protect the bird, in such localities as it does not normally occur.

So much, then, in regard to the relation of owls to the welfare of the agriculturist. We have next to do with the



Fig. 3. Young Barred Owl.

question of the value of these birds to the hunter of small varieties of feathered game in this country. We may omit any other kind of game that the sportsman pursues, as hares, rabbits, squirrels, and the like, for they can only be taken by the larger species of owls, and often with advantage to man, as in the case of Jack Rabbits, and so on. There is no doubt in the world but that the owls in this country, of many species and of all sizes, in the course of a year capture and consume a good many game-birds of all kinds. It is simply as birds of prey that they do this, however, and with the sole object of sustaining life. Moreover, it is only the medium sized and larger owls that capture such game bird as quails, grouse, turkeys, and so on, though the smaller species may prey upon the young of such game occasionally. Man, however, is the great destroyer of game-birds of all species; and between his gun and his traps he is gradually, but with marked certainty, exterminating all such species in the world's avifauna, just as he did the wild pigeon in the last half century.

An average gunner who hunts regularly will kill more feathered game in one season than any species of owl will in the course of its natural life-time; so that, when we come to compare the number of owls in the country with the number of men who habitually hunt and kill feathered game, it is safe to say that we may almost reckon the amount of destruction along such lines by the former as practically *nil*.

Audubon, who published something in regard to the habits of a few of our owls, says that the food of the big Snowy owl "consists of hares, squirrels, rats, and fishes"; but that "it also watches the traps set for muskrats, and devours the animals caught in them." Of the Burrowing owl he says: "They are strictly diurnal, feed principally upon grasshoppers and crickets, and, according to the Indians, sometimes upon field-mice"; while with respect to the Acadian owl, he fails to mention what its food consists of, though he figures it with what appears to be a mouse in its talons.

In the case of the Barn owl, he says that "After long ob-

servation, I am satisfied that our bird feeds entirely on the smaller species of quadrupeds, for I have never found any portions of birds about their nests, nor even the remains of a single feather in the pellets which they regurgitate, and which are always formed of the bones and hair of quadrupeds."

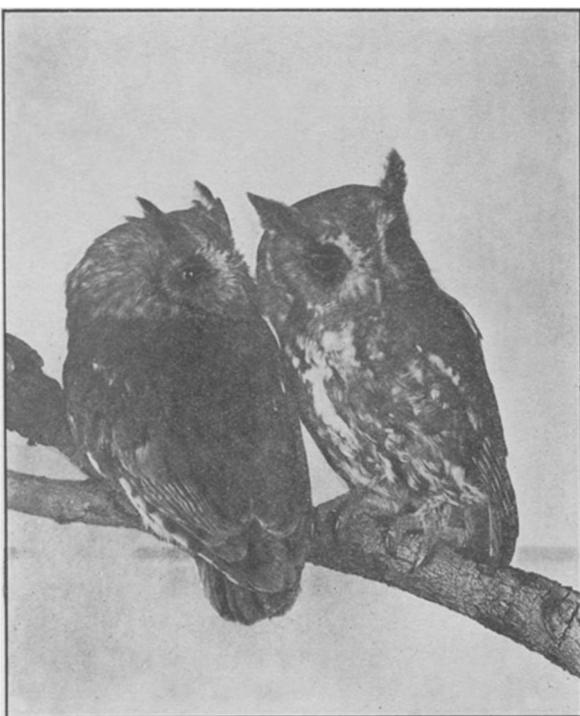


Fig. 4. Adult Screech Owl.

"The Barred Owl," he says, "is a great destroyer of poultry, particularly of chickens when half-grown. It also secures mice, young hares, rabbits, and many species of small birds, but is especially fond of a kind of a frog of a brown colour, very common in the woods of Louisiana." So far as this report goes, the sportsman has nothing in particular to

hold the Barred owl up for, and in these days they probably do not kill as many young chickens as they did when Audubon lived, and whose observations, by the way, were largely confined to Louisiana, where, so far as my experience car-



Fig. 5. Young Screech Owl.

ries me — and I've kept chickens in Louisiana — there is a flightless, featherless, black owl that will get away with more chickens in one night than a whole family of Barred owls will in the course of two or three months.

There is no question but that the Great-horned owl preys upon feathered game of all kinds, but the bird by no means confines itself to that line of diet, for it is equally fond of many of the medium sized and smaller mammals, as opossums, rats, squirrels, young hares, rabbits, etc., and it will, when occasion offers, consume dead fish when washed ashore, in which habit he is surely performing a public service.

Audubon does not say a word about the food of the Screech owl, beyond the fact that it "pursues large beetles"; while on the other hand he devotes the major share of his account of the bird to mixing up fact and tradition in regard to its two phases of plumage, and taking Wilson to task in regard to what he said about it.

Taking everything into consideration, then, with respect to the habits and food of owls, as such matters affect the welfare of man, it is perfectly safe to say, in truth, that upon the whole these birds are good friends to our race in the long run, and fully deserving of our protection and encouragement. To persistently destroy these birds would be a grievous error, as in practically all cases where man has upset the balance of nature, it has generally reacted, in boomrang fashion, by giving him a fearful rap for his pains.

PLAINFIELD, NEW JERSEY, BIRD CENSUS.

BY W. DEW. MILLER AND CHARLES H. ROGERS.

In 1914 we were accompanied by Dr. William H. Wiegmann. We started at 3:50 a. m. from East 7th Street and walked northward across the city and took a devious route through and over the Watchung Mountains to the Passaic River, up whose south bank we went to the Dead River, and up it half a mile to a certain marsh, which we reached just at sunset. Thence we took the shortest road back to North Plainfield, where we boarded a car at 10 p. m., except that W. DeW. M. lingered on the way to listen to the Virginia Rail and got in somewhat later. Weather fine; cool N. W.